III, N represents nitrogen, M represents an element of elemental group V[, with the exception of N,] or group VI, and X, Y, Z, V[,] and W represent the mol fraction of each element in [this compound, operating on] $A_XB_YC_ZN_VM_W$, in a [device] reactor comprising a reaction chamber defined by a set of chamber walls and an upper side and lower side thereof, [wherein at least one] a first wafer support [is disposed, at least one] positioned within the reaction chamber, a gas inlet through which [the] process gases flow into [said] the reaction chamber [in a controlled succession], [possibly] a gas mixing system in fluid communication with the reaction chamber, a gas outlet through which the process gases are discharged [again after they have flown through said reaction chamber,] from the reaction chamber, a second wafer support positioned on the first wafer support, a heating system for heating the first wafer support, and a controller [that controls or controls in a closed loop, respectively, the type or the composition of the in-flowing] for controlling the process gases and [the] a set of process temperatures and variations thereof characteristic [of the wafer, as well as possibly further parts of said] of the reaction chamber[,]; the method comprising:

[characterised in that for the selective adjustment of the characteristics of the materials so produced, in addition to the control of the absolute temperature of the wafer and/or at least one part of said reaction chamber, also the temperature variation of at least this part or another part of said reaction chamber, **e.g.** the gas inlet T_1, the chamber walls T_2, the principal wafer support T_3, rotating individual wafer supports T_4, the gas outlet T_5, said gas mixing system T_6, the upper side of said reaction chamber T_7 and/or said heating system T_8 are adjusted with temperature variation profiles within the range of seconds in such a way that the variation of the process parameters so caused results in a dynamic control of the thermal processes leading to the production of the materials.]

controlling the set of process temperatures wherein the set of process temperatures is selected from the group consisting of the temperature of the gas inlet, T_1, the

temperature of the chamber walls, T_2, the temperature of the first wafer support, T_3, the temperature of the second wafer support, T_4, the temperature of the gas outlet, T_5, the temperature of the gas mixing system, T_6, the temperature of the upper side of the reaction chamber, T_7, and the temperature of the heating system, T_8;

controlling the temporal variation of the set of process temperatures; and

controlling process parameters in the reaction chamber.

2. (Amended) [Method] The method according to Claim 1[, characterized by] wherein controlling the set of process temperatures comprises controlling the temperature of the gas inlet, T_1, so as to be below [the] a condensation temperature of the process gases [and by adjustment of the temperature for avoiding the formation of addition compounds].

3. (Amended) [Method] The method according to Claim 1[, characterised by] wherein controlling the set of process temperatures comprises controlling [of] the temperature of the chamber walls, T_2, so as to be equal to the temperature of the first wafer support, T_3.

4. (Amended) [Method] The method according to Claim 1[, characterised by] wherein controlling the set of process temperatures comprises controlling the temperature of the first wafer support, T_3, as a constant temperature [and up to 1600 °C, with required reproducible temperature variations of up to 250 °C per minute].

5. (Amended) [Method] The method according to Claim 1[, characterised by] wherein controlling the set of process temperatures comprises controlling the temperature of the second wafer support, T_4, [as a correlate to] in correspondence with the temperature of the first wafer support, T_3 [with an accuracy of 0.1 °C].

6. (Amended) [Method] The method according to Claim 1[, characterised by] wherein controlling the set of process temperatures comprises controlling the temperature of the gas outlet, T_5, to a value smaller than the value of the temperature[s] of the second wafer support, T_4, and the temperature the first wafer support, T_3.

7. (Amended) [Method] The method according to Claim 1[, characterised by] wherein controlling the set of process temperatures comprises controlling the temperature of the gas mixing system, T_6, as a constant temperature smaller than the temperature of the gas inlet, T_1.

8. (Amended) [Method] The method according to Claim 1[, characterised by] wherein controlling the set of process temperatures comprises controlling the temperature of the upper side of the reaction chamber, T_7, as a constant temperature [and correlate to] in correspondence with the temperature of the first wafer support, T_3.

9. (Amended) [Method] The method according to Claim 1[, characterised by] wherein controlling the set of process temperatures comprises controlling the temperature of the heating system, T_8, as a constant temperature [and correlate to] in correspondence with the temperature of the first wafer support, T_3.

10. (Amended) [Method] The method according to Claim 1[, characterised by additionally] wherein controlling the set of process temperatures comprises controlling a temperature-dependent gas flow variation.

11. (Amended) [Method] The method according to Claim 1[, characterised by additionally] wherein controlling the set of process temperatures comprises controlling a temperature-dependent total pressure variation in the reaction chamber.

12. (Amended) [Method] The method according to Claim 1[, characterised by additionally] wherein controlling the set of process temperatures comprises controlling a temperature-dependent principal carrier gas variation in the reaction chamber.

13. (Amended) [Method] The method according to Claim 1[, characterised by additionally] wherein controlling the set of process temperatures comprises controlling temperature-dependent interrupts in the production process.

14. (Amended) [Method] The method according to Claim 1[, characterised by] further comprising applying the semiconductor materials to be produced on a mechanical carrier of a semiconductor of group IV, a semiconductor of groups III-V, oxides or any other material resistant to temperatures and the process gases.

15. (Amended) [Method] The method according to Claim [1, characterised by] 14 further comprising pre-treating said mechanical carrier by applying lines, dots, or by carrying out other steps for surface treatment, or by partially covering the surface with other materials or material components.

16. (Amended) [Method] The method according to Claim 1[, characterised by] further comprising a two-stage application of pre-processed $A_XB_YC_ZN_VM_W$ materials.

17. (Amended) [Method] The method according to Claim 1[, characterised by the] wherein controlling the set of process temperatures comprises [employment of] employing a temperature-controlled injector.

Add new Claims 18, 19, and 20 as set forth below:

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19 ~~18~~. (Newly added) The method of claim 4 wherein controlling the set of process temperatures comprises controlling the temperature of the first wafer support, T_3, up to about 1600 degrees centigrade.

20 ~~19~~. (Newly added) The method of claim 18 wherein controlling the temporal variations of the set of process temperatures comprises controlling the temperature of the first wafer support, T_3, with temperature variations of up to 250 degrees per minute.

21 ~~20~~. (Newly Added) The method of claim 4 wherein controlling the set of process temperatures comprises controlling the temperature of the first wafer support to an accuracy of 0.1 degrees centigrade.